INDIVIDUAL LAGOON

Description. A pond sealed with a natural or synthetic liner and into which sewage from a household or small business is discharged. Bacteria digest the solids in the presence of oxygen and the liquid is evaporated into the atmosphere.

Conditions for Approval.

1. Lagoons are applicable only in areas of the State where the annual evaporation exceeds the annual precipitation.

2. The lagoon may not be placed within one hundred (100) feet of the owner's property line, and may not be placed within three hundred (300) feet from a neighboring dwelling.

3. The bottom of the finished lagoon must not be constructed within six (6) inches of the maximum seasonal high groundwater.

4. The site must be located in an area of maximum exposure to the sun and wind.

5. Slope must not be greater than twelve (12) percent.

6. Lagoons are restricted from use in areas where such systems may have an ice cover for more than three (3) months.

7. A source of make-up water must be readily available.

8. Lot size should be at least ten (10) acres, but in no case should be less than five (5) acres. If the lot is less than ten (10) acres, a variance must be required.

Design.

1. Area of the lagoon at the two (2) foot minimum depth is first determined by the net evaporation of the area:

$$\text{Area, Square Feet} = \frac{1.2 \times \text{Yearly Flow, in Cubic Feet}^{*}}{\text{Annual Net Moisture, in Feet}^{**}}$$

* Yearly Flow, Cubic Feet = gallons/day x 365 days) 7.48 gal/ft^3.
** Annual Net Moisture, as determined from a water mass balance beginning in October.

2. For commercial establishments with organic loadings higher than domestic sewage check the area required based on BOD loading. This is also a particularly important check in areas with high evaporation rates and low precipitation.

$$A = \frac{(\text{gallons/day})(\text{BOD, mg/l})(8.35 \times 10^{-6})}{20 \text{ lbs/acre/day}} \times 43{,}560 \text{ ft5/acre}$$

Where A = Surface area in square feet.

3. Use the area calculation that gives the largest area.

4. Total Liquid Depth: Two (2) feet Minimum Depth + two (2) feet Freeboard + Annual Net Moisture as determined by a water mass balance.

Construction.

1. The effluent discharge inlet to the lagoon must be placed near its center.

2. A concrete splash-pad must be constructed around the inlet.

3. A water depth gauge clearly visible from the edge of the lagoon should be installed at the concrete splash pad.

4. A cleanout must be placed on the gravity influent lines at a point above the lagoon maximum liquid elevation.

5. If the sewage is pumped to the lagoon, a valve must be installed in the line that will permit repairs without draining the lagoon and will prevent backflow of effluent to the pumping chamber.

6. Excavation must provide the following dike and embankment details:

Inner slope	3:1
Outer Slope	2:1 or flatter
Embankment Width	4 feet Minimum

7. All fill must be compacted.

8. The lagoon must be fenced to exclude children, pets and livestock. A sign indicating **"DANGER - HUMAN SEWAGE"** is recommended.

Inspections.

1. The site must be inspected at the time the impervious liner is placed.

2. Inspections may be required during embankment construction to assure adequacy of fill compaction and after completion.

3. Individual lagoons will be seepage tested by licensed engineers using the appropriate pond/lagoon seepage test procedure.